

NEW TUBE 'STEPS UP' POWER OF 1,000 KW.

Lightweight Magnetron Is Described by General Electric Scientists.

USED IN RADIO TESTS
Perfect in Researches for Apparatus to Simplify Transmission Lines.

MAY BE REVOLUTIONARY

Would Make Possible Sending of Energy Longer Distances Than at Present.

Special Dispatch to THE NEW YORK HERALD.
SCHENECTADY, Oct. 21.—A 1,000 kilowatt vacuum tube, fifty times more powerful than any now in use, has been developed in the research laboratory of the General Electric Company.

It is called the magnetron, and, although still experimental, represents an important step in the effort to produce tubes not only for radio, but also for the long distance transmission of tremendous electric power by means of the direct current. Its creation grew out of a desire to fashion tubes for general power purposes—a new field for them.

The existence of the 1,000 kilowatt tube has been kept secret heretofore, but is reported by Dr. Irving Langmuir of the research laboratory in an article published to-day in the *Electrical World*.

This new wonder was constructed by J. H. Payne, Jr., of the laboratory staff, and involves a principle of magnetic control proposed by Dr. A. W. Hull. It would light 40,000 twenty-five watt incandescent lamps or supply energy to almost 1,500 average homes, but it weighs only sixty pounds.

For Power Transmission.

"Engineers had found," the company says, "that the major problem of tube development for wireless had been solved in so far as the larger sizes of tubes were concerned. They had demonstrated that almost any size tube could be made for radio work and operated successfully. But there was a wonderful field for tubes in general engineering, especially where very high frequency generators or high voltage rectifiers might be required.

"Thus attention was directed to the development of super-power tubes for use in the generation and transmission of high voltage direct current and for other engineering work.

"The maximum to which electricity can economically be transmitted is severely limited by the loss of power in alternating current. The difficulty has been in the generation and distribution of very high voltage direct current. It is such difficulties that will be solved by vacuum tubes, of which this one is an example.

1,000 Ampere Current Needed.

Dr. Langmuir is the Electrical World says:

"This tube consists essentially of a water cooled cylindrical anode 20 inches long and 1 1/2 inches diameter. In the axis of the anode is a tungsten filament four-tenths of an inch in diameter and 22 inches long. This filament is excited by current of 1,000 amperes at 100 cycles. The filament excitation requires about 25 kilowatts.

"The magnetic field produced by this large heating current is sufficient to 'cut off' the electric current from the cathode to the anode during a portion of each half cycle of the current passing through the cathode, this action taking the place of that of the grid in the three electrode tube. The electron current to the cathode is thus interrupted 50 times per second. By the use of properly tuned circuits this can be used for the production of high frequency power radio or any other purposes.

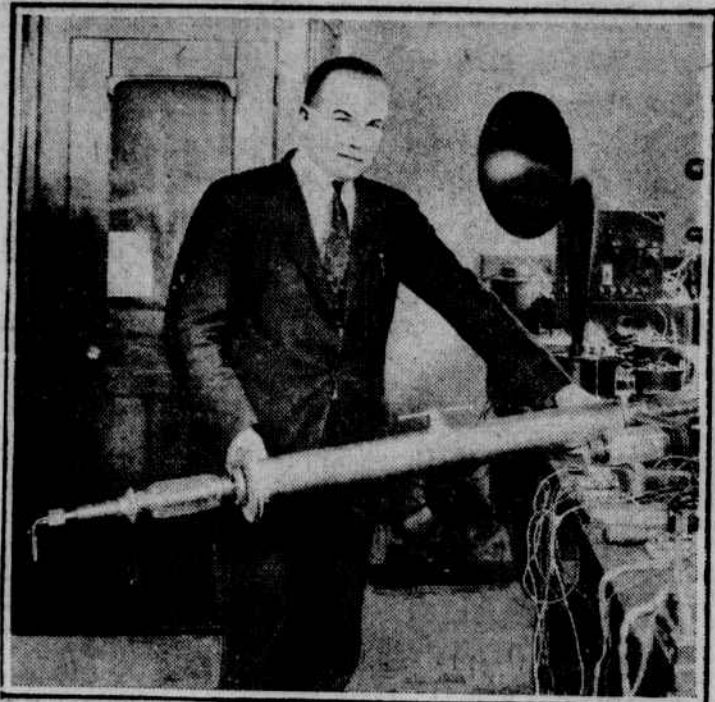
Good for 1,000 Kilowatts.

"This type of tube will supply 1,000 kilowatts of 50,000 cycle power at an efficiency of 70 per cent, operating with an anode voltage of 20,000 volts direct current, and a cathode voltage of 20 volts and current of 10 amperes, thus consuming about 1 kilowatt. For radio purposes, efficiencies of 70 and 80 per cent are eminently satisfactory, but for other engineering purposes they are not as high as would be generally desired.

"Another line of development is therefore in progress, viz., the production of tubes of higher efficiency, as well as tubes of larger output. The progress in this direction is more difficult and is apt to be slower than in the direction which has thus far seemed more important. These developments will come gradually, for the practical construction of powerful tubes giving thoroughly satisfactory operation requires a great deal of development work. It would be rash, however, to predict the limitations of the ultimate use of the vacuum tubes in the power field.

In the recent tests at Rocky Point, L. I., in which tubes were substituted for a mechanical alternator weighing 20,000 pounds, and 20 kilowatt piloton tubes were used, and the radio signals were received at Nauen, Germany. Three magnetron tubes were used to rectify the alternating current supplied. Now comes a third form of tube, the magnetron, much more powerful than either.

Magnifies Electrical Energy



The magnetron tube, designed to help send electrical power for many times greater distances than are now possible.

Daily Calendar FINDS ARISTOCRACY OF BRAINS IS MYTH

THE WEATHER.

For Eastern New York—Fair to-day and to-morrow; warmer to-day; moderate south and southwest winds.
For New Jersey—Fair to-day and to-morrow; warmer to-morrow; moderate south and southwest winds.
For Northern New England—Fair and warmer to-day and to-morrow; moderate south and southwest winds.
For Southern New England—Fair and warmer to-day and to-morrow; moderate south and southwest winds.
For Western New York—Fair and warmer to-day; to-morrow cloudy, becoming unsettled by to-morrow night; moderate south and southwest winds.

WASHINGTON, Oct. 21.—Incomplete reports from Mexico indicate that the tropical storm has reached the Mexican coast in the vicinity of Frontera. The gales in the bay of Campeche have subsided.
Pressure was low and falling to-night from Lake Superior southwestward to the Rio Grande Valley, with centers of minimum pressure over Minnesota and Kansas. Pressure remained high over the Eastern States and the north Pacific States, and high and rising over the northern Rocky Mountain region. The weather has remained fair during the last twenty-four hours except that there were local rains in the northern lake region, the northern Rocky Mountain region and Colorado and along the southeast Florida coast.

The temperature was higher to-day in the lake region, the Ohio and upper Mississippi valleys and the west Gulf States, and in the Atlantic States north of Virginia, while cooler weather overpread the Canadian Northwest, the Dakotas and the central and northern Rocky Mountain regions. The indications are for generally fair weather to-morrow and Monday in the Atlantic States.

Observations at United States Weather Bureau stations, taken at 7 P. M. yesterday, seventy-fifth meridian time:

Stations	High	Low	Bar	Wind	Weather
Albany	52	38	29.94	Clear	
Albany	52	38	29.94	Clear	
Albany	52	38	29.94	Clear	
Baltimore	50	38	30.20	Clear	
Baltimore	50	38	30.20	Clear	
Baltimore	50	38	30.20	Clear	
Boston	48	36	30.10	Cloudy	
Boston	48	36	30.10	Cloudy	
Boston	48	36	30.10	Cloudy	
Buffalo	54	32	30.14	Clear	
Buffalo	54	32	30.14	Clear	
Buffalo	54	32	30.14	Clear	
Chicago	58	40	30.18	Clear	
Chicago	58	40	30.18	Clear	
Chicago	58	40	30.18	Clear	
Charlotte	58	38	30.14	Clear	
Charlotte	58	38	30.14	Clear	
Charlotte	58	38	30.14	Clear	
Denver	58	42	30.16	Clear	
Denver	58	42	30.16	Clear	
Denver	58	42	30.16	Clear	
Detroit	56	42	30.12	Clear	
Detroit	56	42	30.12	Clear	
Detroit	56	42	30.12	Clear	
El Paso	50	34	30.02	Clear	
El Paso	50	34	30.02	Clear	
El Paso	50	34	30.02	Clear	
Helena	52	42	30.20	Clear	
Helena	52	42	30.20	Clear	
Helena	52	42	30.20	Clear	
Jacksonville	50	36	30.00	Partly Cloudy	
Jacksonville	50	36	30.00	Partly Cloudy	
Jacksonville	50	36	30.00	Partly Cloudy	
Kansas City	52	38	30.00	Clear	
Kansas City	52	38	30.00	Clear	
Kansas City	52	38	30.00	Clear	
Los Angeles	72	58	29.94	Clear	
Los Angeles	72	58	29.94	Clear	
Los Angeles	72	58	29.94	Clear	
Memphis	58	42	30.20	Clear	
Memphis	58	42	30.20	Clear	
Memphis	58	42	30.20	Clear	
New Orleans	60	44	30.02	Clear	
New Orleans	60	44	30.02	Clear	
New Orleans	60	44	30.02	Clear	
Oklahoma	58	44	30.04	Clear	
Oklahoma	58	44	30.04	Clear	
Oklahoma	58	44	30.04	Clear	
Pittsburgh	56	34	30.20	Clear	
Pittsburgh	56	34	30.20	Clear	
Pittsburgh	56	34	30.20	Clear	
Portland, Ore.	54	40	30.20	Clear	
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Portland, Ore.	54	40	30.20	Clear	
Salt Lake City	56	42	30.20	Clear	
Salt Lake City	56	42	30.20	Clear	
Salt Lake City	56	42	30.20	Clear	
San Antonio	54	38	29.96	Clear	
San Antonio	54	38	29.96	Clear	
San Antonio	54	38	29.96	Clear	
San Diego	60	46	30.02	Clear	
San Diego	60	46	30.02	Clear	
San Diego	60	46	30.02	Clear	
San Francisco	50	36	30.02	Partly Cloudy	
San Francisco	50	36	30.02	Partly Cloudy	
San Francisco	50	36	30.02	Partly Cloudy	
Seattle	52	38	30.16	Clear	
Seattle	52	38	30.16	Clear	
Seattle	52	38	30.16	Clear	
St. Louis	58	44	30.04	Clear	
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EVENTS TO-DAY.

Lecture by Prof. J. C. Carter, teacher of "The Life and Letters of Walter H. Page," by Burton Hendrick, 10:30 P. M.
Lecture by J. A. Fowler on "Telepathy or Thought Transference," American Institute of Psychology, 125 West Forty-second street, 8 P. M.
Inauguration of the free public lecture series by the Board of Education, began to-day at Washington Irving High School, 3 P. M.; lecture by Prof. Charles T. Brown on "The Life and Letters of Walter H. Page," by Burton Hendrick, 10:30 P. M.
Lecture by Prof. William B. Ogle on "The Situation in the Near East," Public School 101, 111th street and Lexington avenue, 8:15 P. M.
Metropolitan Museum of Art story hours for children, by Anna J. Chandler, 2 and 3 P. M.; story hour for practical workers, by Grace Connell, 3 P. M.
Labor Temple, Fourteenth street and Second avenue, lecture by Dr. J. C. Carter, 8 P. M.; "Aeschylus, Prometheus Bound," 3 P. M.; lecture by Edmund R. Swiffin, "Wak Jones," 7:30 P. M.; lecture by Dr. Henry Neumann, "A New World and Its Need of a New Church," 8:15 P. M.
Church of the Healing Christ, services, Waldorf Astor, H. A. M.
In at Trades Club, exhibitions, roof garden, Waldorf Astor, 1 to 6 P. M.
Sir Bertrand Windle, F. R. S., will be the guest of the Catholic Club of New York and lecture on "The Life and Letters of Walter H. Page," by Burton Hendrick, 10:30 P. M.
Concert, sponsored by Miss Maudie Rose Knapp, violinist, 120 Central Park West, 8:30 P. M.

BANTON SEES CRIME DROP.

Decrease Indicated by Smaller Number of Indictments.
Darius A. Jones, Jr., in a statement yesterday said that crime in the city had decreased in the last year, and that up to a week ago the Grand Jurors had filed 4,000 indictments for the year, as compared with 4,500 for the same period last year.
During the October term 240 cases have been disposed of as against 238 last year. The Grand Jury dismissed 1,250 complaints last year, while this year 2,027 complaints were thrown out.

HARDING HALTS THE PORK BARREL BILL

Public Building Outlay Is Stopped After Conference With Lord.

ITS BACKERS STUNNED
Republican Leaders Approve President's New Move for Economy.

VETO ALSO THREATENED

This Will Come if Congress Manages to Jam the Measure Through.

Special Dispatch to THE NEW YORK HERALD.
New York Herald Bureau.
Washington, D. C., Oct. 21.—President Harding has set his foot down on the Congressional proposal for a \$100,000,000 "pork barrel" bill to provide public buildings in remote sections. He believes the Government cannot afford to embark on such an unprofitable enterprise at this time and is confident the cities and towns which would like to have ornate Federal buildings can wait until the Treasury condition is improved.

Mr. Harding's attitude on the "pork barrel" proposal became known to-day when he gave tentative approval to the 1923 estimate for appropriations now being worked out by Gen. Lord, Director of the Budget. The estimates, which limit the expenses of running the Government to the amount of the income, contain no mention of a "pork barrel" bill.

The decision will be a blow to Representative Langley (Ky.), chairman of the House Committee on Public Buildings and Grounds, and many of his colleagues, who had expected a great haul in the proposed measure. Many of the members already have promised public buildings to their home communities. Their appetites for public buildings have been whetted by the fact that there has been no such bill for almost ten years.

Postmaster-General Work says many new post office buildings are needed, as well as additions to existing structures, thus giving his most if not active support to the pork bill. But Administration leaders say such a measure at the coming session would be ill advised, if not suicidal, for the Republican party, which is committed to an economic program.

Reaction Is Unfavorable.
Some of the Republican leaders are criticizing Representative Langley for sponsoring the bill at this time. They say it is causing unfavorable reaction throughout the country.

There is a growing belief at the Capitol that President Harding will veto the pork barrel bill if it is forced through Congress by one of the many log rolling plans now in the making. Because of the heavy drain on the Treasury for necessary expenses of the Government, one of the leading Senators pointed out that it will be absolutely necessary for Congress to kill all pork barrel proposals.

The supervising architect of the Treasury Department is going ahead on the assumption that the appropriation will be available and plans are being made for erection of the buildings to be agreed upon by the House Appropriations committee and the Post Office Department.

The essential items of the 1923 estimates for appropriations now being compiled by the Budget Bureau have the approval of President Harding. The estimates will be completed next week for the final approval and then will be sent to the printer. They will include Congress getting a flying start with the appropriation bills and indicates strongly that the job of providing funds for the next fiscal year will be completed, as Mr. Harding desires, by March 4, so that an extra session will not be necessary. The Appropriations Committee of the House will start going over the figures about November 15 or soon after the elections.

Cuts Must Be Made.

Gen. Lord in his conference with the President outlined cuts that will have to be made in the estimates if the program of keeping the estimates of expenditures within the estimates of receipts is followed. This of course means that the Government will not spend more than \$3,195,000 in the next fiscal year, an amount \$600,000 less than the expenditures of the current year.

The reductions are to be felt in all forty-five Government departments and independent agencies such as the Federal Trade Commission, the I. C. C. and others. The United States Tariff Commission will receive an increase. That is necessary because of the provision in the new Fordney-McCumber tariff law bestowing on the Tariff Commission the power of making sweeping investigations of tariff matters as the basis for Presidential suggestion of the tariff. In order to accomplish this the commission will be enlarged and branch offices established, including one in New York city. The

Say Women Will Neglect Homes to Help Smith Win

MRS. VANDERBILT WEBB, Mrs. Charles Dana Gibson, Mrs. John W. Davis, Mrs. Bainbridge Colby, Mrs. Daniel O'Day and many other women of equal prominence are going to neglect their fall pickling and preserving to help elect "Al" Smith Governor.

Mr. Webb, Mr. Gibson and the husbands of the other well known women named may have to eat bread and milk for supper on the kitchen table because their wives will be out campaigning and will be too busy to prepare the evening meal.

That is according to an announcement yesterday by the women's division of the State Democratic Committee.

additional cost of the commission will be more than offset, however, by the increased revenues derived from the Fordney-McCumber bill. It is figured that the sale in customs receipts under this measure will amount to \$50,000,000 a year.

Senator Curtis (Kan.), Republican, who issued a campaign statement to-day saying the Administration has done and is doing everything possible to reduce expenditures.

"When the extra session was called May 1919," he said, "the new Republican Congress was asked to pass on the big supply bills which had failed of passage before March 4, 1919. The amount recommended by the previous Congress was \$3,767,975,974. The amount appropriated was \$2,238,283,432 a reduction of \$1,529,692,542 made by a Republican Congress.

"The appropriations for the fiscal year 1920 amounted to \$4,454,395,649, for the fiscal year 1921, \$4,790,329,510, and for 1922, \$4,066,518,284. These for the fiscal years 1921 and 1922 were greatly reduced from estimates made by the Democratic heads of departments. For the fiscal year 1922 the appropriations for 1921, and \$419,289,384 for 1922. The largest reductions for 1922 were in the appropriations for the army and navy."

Senator Curtis said the reduced appropriations have resulted in a tax reduction for 1921 of \$20,000,000, and for 1922 of \$80,000,000. He said the number of Federal employees has been reduced by 12,729.